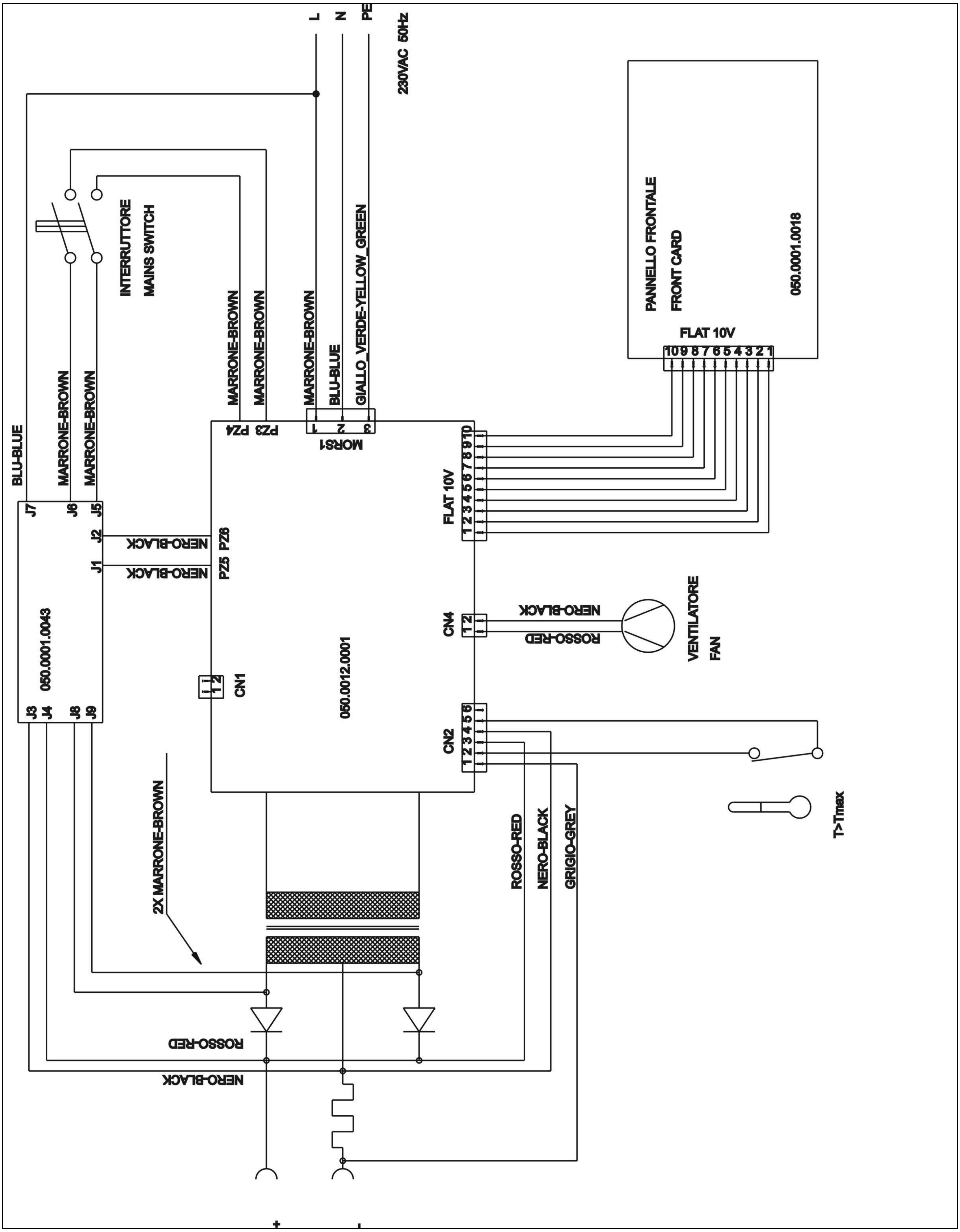
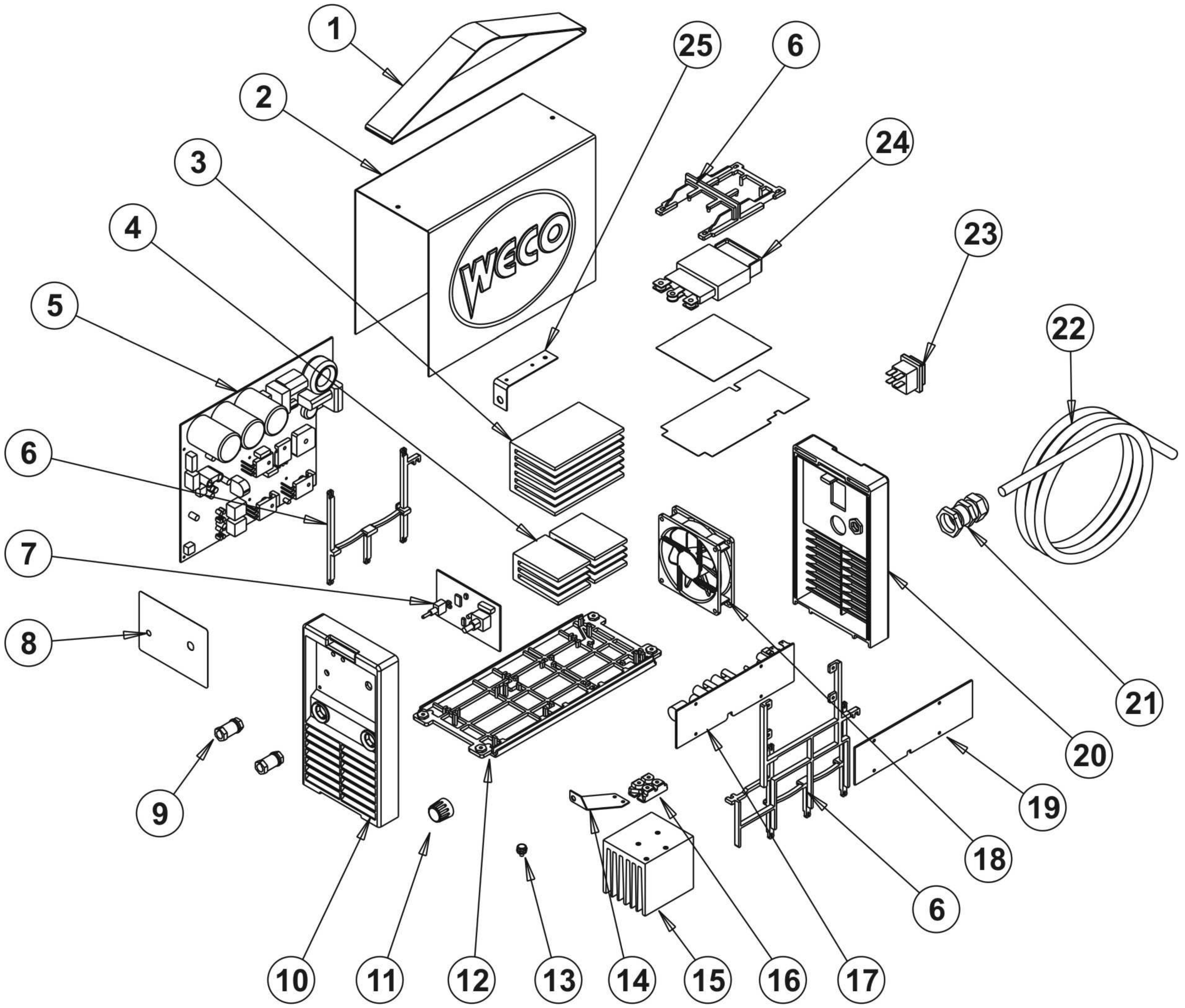
SERVISNÍ MANUÁL ALFIN 150 TP	SERVICE MANUAL ALFIN 150 TP



1. VAROVÁNÍ	WARNING
UPOZORNĚNÍ – Pouze osoba splňující kvalifikaci danou zákonem je oprávněna opravovat stroj. PŘED OTEVŘENÍM KRYTU STROJE JEJ ODPOJTE VYTAŽENÍM SÍŤOVÉ VIDLICE ZE SÍTĚ. Každé 4 měsíce otevřete stroj a jemně ho vyfoukejte stlačeným suchým vzduchem POZOR, NEPOUŽÍVEJTE STLAČENÝ VZDUCH O PŘÍLIŠ VYSOKÉM TLAKU, ABY NEDOŠLO K MECHANICKÉMU POŠKOZENÍ ELEKTROSOUČÁSTEK. Každé 4 měsíce zkontrolujte řádný stav svařovacích kabelů a síťových kabelů. Není povolena žádná modifikace svařovacího stroje. Pro Vaši bezpečnost je nutné posečkat se sundáním krytu ze stroje po odpojení ze sítě po dobu minimálně 5 minut, kdy klesne napětí na kondenzátorech na hodnotu pod 36 V.	NOTE Only trained personnel are permitted to work inside the machine. BEFORE OPENING THE MACHINE, CUT OFF ITS ELECTRICAL POWER BY REMOVING THE PLUG FROM THE MAINS SUPPLY SOCKET. Every six months, open the machine and clean it inside, using compressed dehumidified air. CAUTION. DO NOT USE COMPRESSED AIR AT TOO HIGH A PRESSURE. YOU COULD DAMAGE THE ELECTRONIC COMPONENTS. With the same frequency, check the welding cables and the supply cables. No modification, of any type, may be made to the welding machine. For safety while maintaining the machine, please shut off the supply power and wait for 5 minutes, until capacity voltage already drops to safe voltage 36V.
2. BLOKOVÉ SCHÉMA	ELECTRICAL PRINCIPLE DRAWING


L
N
PE
230VAC 50Hz
INTERRUTTORE
MAINS SWITCH
PANNELLO FRONTALE
FRONT CARD
050.0001.0018
FLAT 10V
BLU-BLUE
MARRONE-BROWN
MARRONE-BROWN
MARRONE-BROWN
MARRONE-BROWN
MARRONE-BROWN
BLU-BLUE
GIALLO_VERDE-YELLOW_GREEN
PZ4 PZ3
MORS1
J7 J6 J5
J2 J1
NERO-BLACK
NERO-BLACK
PZ5 PZ6
050.0001.0043
J3 J4 J8 J9
CN1
050.0012.0001
CN4
NERO-BLACK
ROSSO-RED
VENTILATORE
FAN
CN2
T>Tmax
2X MARRONE-BROWN
ROSSO-RED
NERO-BLACK
GRIGIO-GREY
ROSSO-RED
NERO-BLACK
+
-

3. NÁHRADNÍ DÍLY	SPARE PARTS



Poz.	Kód / CODE	Název	DESCRIPTION
1	005.001.0002	Popruh Alfin150	BELT
2	011.001.0001	Kryt horní Alfin150	UPPER COVER
3	015.001.0001	Chladič L-107 Alfin140ET	HEAT SINK L=107mm
4	015.001.0002	Chladič L-50 Alfin140ET	HEAT SINK L=50mm
5	050.010.0001	PCB silová A150	POWER BOARD
6	012.001.0000	Držák vnitřní 140ET	INTERNAL FRAMEWORKS
7	050.001.0018	PCB řídící A150 modrý	LOGIC FRONT PANEL
8	013.015.0001	Panel přední-nálepka A150	FRONT LABEL
9	AO-20510	Rychlosp. 10-25 panel samice	FIXED SOCKET 200A
10	012.001.0150	Panel přední Alfin150M	FRONT PLASTIC PANEL
11	014.002.0011	Knoflík ALFIN modrý 1980/M	KNOB
12	012.001.0006	Kryt spodní Alfin150	LOWER COVER
13	040.003.1080	Termostat Alfin140ET	TERMAL SWITCH
14	045.006.0002	Propoj kladného pólu Alfin140E	COPPER BRACKET
15	015.001.0003	Chladič L-75 Alfin140ET	HEAT SINK L=75mm
16	032.002.0255	Usměrňovač výstupní Alfin	DIODE
17	050.001.0043	PCB 150TP	DOUBLER - OVERCUT BOARD
18	003.002.0001	Ventilátor Alfin	FAN
19	046.004.0003	Izolátor pod PCB HF	ELECTRICAL INSULATION
20	012.001.0102	Panel zadní Alfin 140-150 M	REAR PLASTIC PANEL
21	045.000.0001	Vývodka Alfin	CABLE CLAMP
22	045.002.0001	Kabel přívodní Alfin 140ET	SUPPLY CABLE
23	040.001.0001	Vypínač hlavní Alfin140ET	TWO-POLE SWITCH
24	042.003.0001	Trafo Alfin140ET	PLANAR TRANSFORMER
25	045.005.0003	Bočník Alfin140E	SHUNT

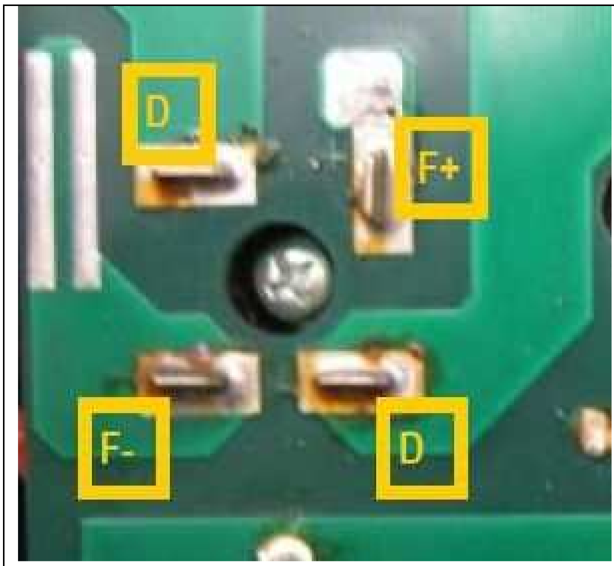
4. KONTROLA SILOVÉ PCB	CHECKING THE POWER PCB



Pozice kontaktů v konektoru

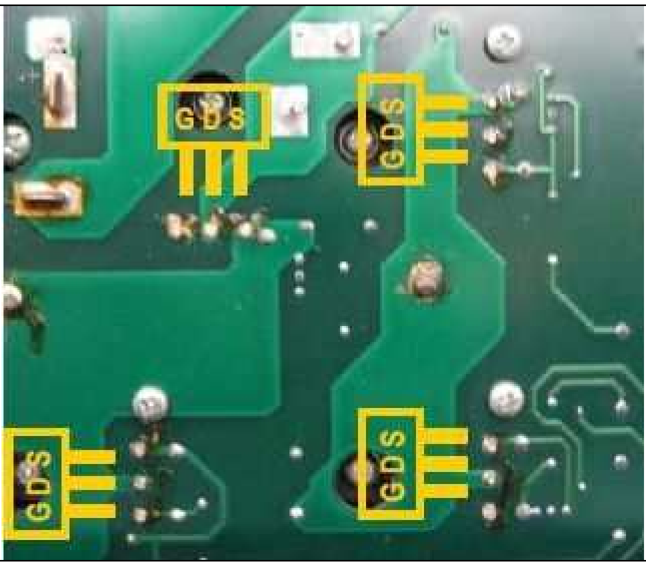
- teplotní čidlo (žluté dráty): pozice 2,5
- drát pro snímání výstupního napětí (červený): pozice 3
- dráty bočníku: pozice 1,4

Zkontrolujte spojení kontaktů tepelné ochrany pomocí testeru diod, teplota chladiče nesmí být vyšší než 40°C.
Zkontrolujte spojení mezi: + objímkou a červeným drátem
Zkontrolujte průchodnost mezi: - objímkou a vodiči bočníku.



Vstupní usměrňovač na silové desce
Pro kontrolu můstku změřte tento podle následující tabulky testerem diod

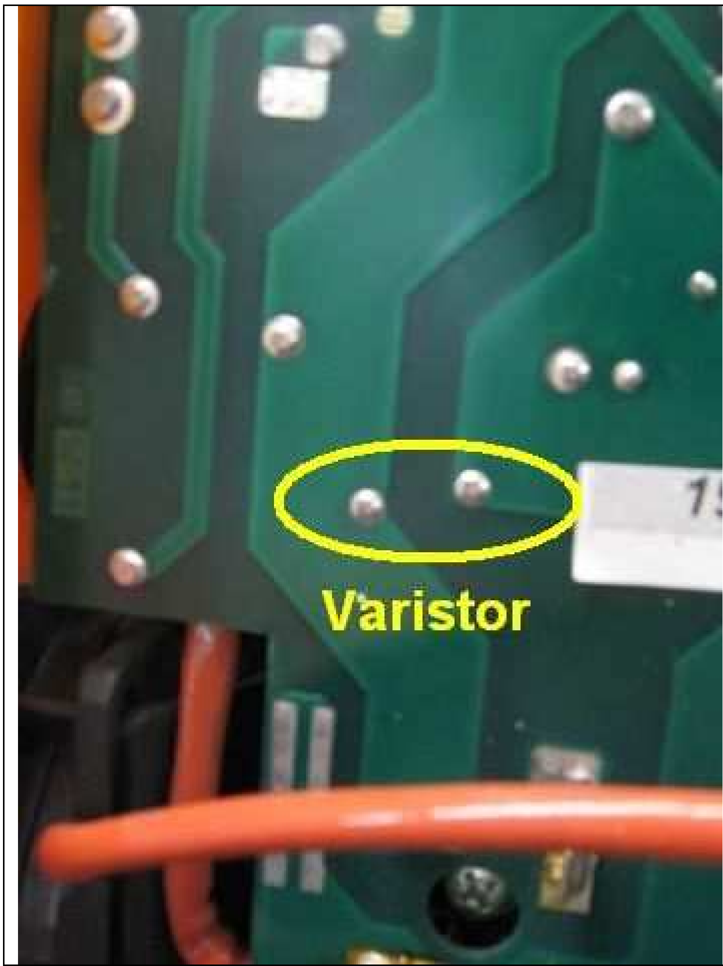
Červený vodič	Černý vodič	Naměřená hodnota
F+	D	OL
D	F+	>0.450
D	F-	OL
F-	D	>0.450



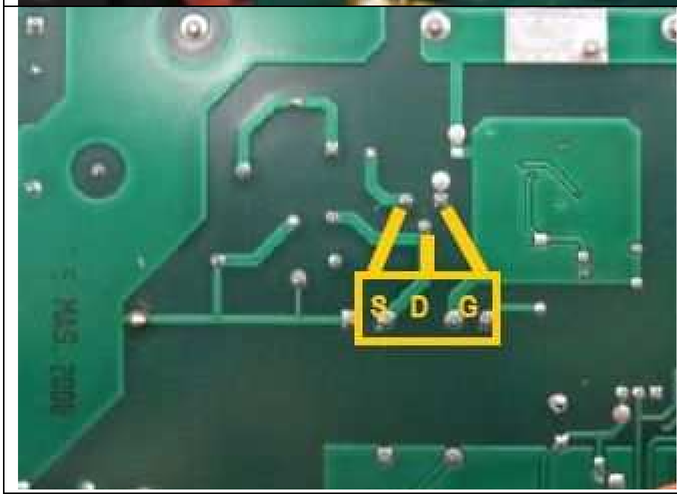
Pro kontrolu tranzistorů změřte tyto podle následující tabulky testerem diod

červený	černý	hodnota
S	G	0,28
G	S	0,6

Hodnoty jsou orientační.
Naměříte-li zkrat, nebo rozpojený obvod (OL), je nutné PCB vyměnit



Varistor je blízko vstupu napájecího napětí na silovou PCB. Toto zařízení slouží k ochraně PCB před vstupním přepětím. Při přepětí "exploduje" a zkratuje vstup. Je-li rozsah zkratu velmi
vysoký, obvod se přeruší



Pro kontrolu tranzistor změřte podle následující tabulky testerem diod

červený	černý	hodnota
G	D	0,5
D	S	OL
G	S	0,6

Hodnoty jsou orientační. Naměříte-li zkrat, nebo rozpojený obvod (OL), je nutné PCB vyměnit



Digitální multimetr. "OL" označuje přerušený obvod

CAUTION!

Before carrying out any work on the machine make sure it is off and the plug has been disconnected.

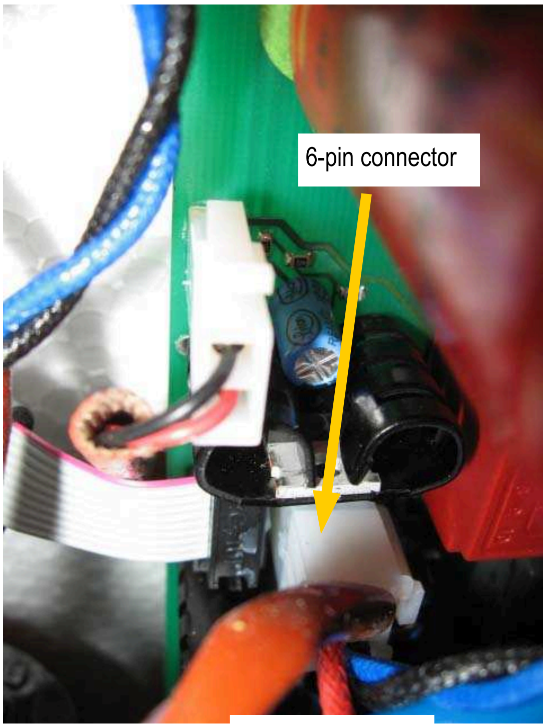
PROBLEM	CASE	SOLUTION
The machine does not switch on.	- Electrical power does not reach the machine. - Voltage reaches the machine switch but there is no voltage after the contacts. - There is voltage after the disconnecting switch but the machine does not go on.	• Make sure the line switches are closed, the protection devices (fuses) have not been enabled and that the power supply cable is intact. • Switch the machine off and disconnect the plug. Make sure that when the switch is closed, there is continuity between the contact input and output and that the varistor is not broken (picture 4). If it's damaged, the Power Board must be replaced. • Switch the machine off and disconnect the plug. Check the mosfet of the switching power supply unit on the power board (picture 5).
The protection devices of the line set off when the switch is activated and the machine does not go on.	- Damaged power supply cable with short-circuited wires. - Inverter is damaged.	• Switch off the machine and disconnect the plug. Make sure that there are no short circuits between the poles of the plug caused by a damaged power supply cable. • Switch off the machine, disconnect the plug and check: - varistors (picture 4); - inverter (picture 3); - Input bridge rectifier (picture 2); - switching power supply unit (picture 5). If one of these components is damaged replace the power board.
The front panel does not switch on.	- The fan works but the front panel does not go on. - Both the fan and the front panel do not work.	• Switch off the machine and disconnect the plug. Make sure the flat cable that connects the front panel to the power board is inserted correctly. If correctly inserted, replace the front panel. If the front panel does not go on, one of the switching power supply unit outputs is broken. Therefore the power board must be replaced. • Switch off the machine, disconnect the plug and check the mosfet of the switching power supply unit (picture 5).

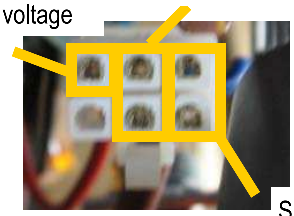
PROBLEM	CASE	SOLUTION
The MMA/TIG output voltage is about 10V and the machine does not weld.	– The output voltage cable that goes to the Power Board is interrupted. – – The primary current alarm on the power board is activated.	• Switch off the machine and disconnect the plug: – Make sure that the wiring contact is correctly inserted in the connector (picture 1). – Check for continuity between the +/- output outlets and that the 6-path connector is connected to the power board; • The power board must be replaced.
The output voltage in each procedure is about 14V and enabling of the thermal protection device.	Wait a few minutes keeping the machine on to favour cooling of the inverter. If the machine continues running with the protection devices on, switch the machine off and disconnect the plug. Remove the hood and make sure: – the temperature of the heat sink tool is less than 40°C; – If it is less than 40°C, check whether the thermal protective device contacts are normally closed.	- If one of the protection devices is always opened it is defective, it must be accordingly replaced. - If it is closed, make sure the two terminals are well inserted in the connector(picture 1). - Power board feed problems, it must be accordingly replaced.
The output voltage in MMA is zero.	Switch the machine off and disconnect the plug. Check for a short circuit at the DINSE plug with a diode tester. A short circuit may be caused by : – damaged diodes; – Damaged voltage doubler; – Damaged inverter; – The inductive value of the Power Transformer is null.	Switch off the machine and disconnect the plug. Remove the snubber board (above the Power Transformer): • check with a diode tester the status of the diodes. If they are damaged, they must be replaced; • Check with a diode tester the status of the voltage doubler , if it's damaged it must be replaced; • Check the status of the Power Board (picture 3); • The Power Transformer must be replaced.
The output voltage in MMA is not 90 V.	– The voltage doubler is damaged. – The Power board 0001 is damaged. – The Front Panel is damaged. – The shunt wires are damaged or not correctly inserted in the 6-pin connector.	• Replace the damaged components or the damaged boards. • Connect the cables or if damaged replace them.

PROBLEM	CASE	SOLUTION
The welding is non optimal.	Spattering occurs during welding.	Make sure welding polarity is correct, the earth clamp is fixed correctly.
When welding the protection devices of the line set off.	Make sure the welding current does not require greater power than the one supplied by the line.	Decrease the welding current.
The machine always welds at maximum current.	– The Front Panel is damaged. – The Power Board is damaged. – The shunt wires are damaged or not correctly inserted in the 6-pin connector. – The doubler board is damaged.	Switch off the machine and disconnect the plug: • The Front Panel must be replaced. • The Power Board must be replaced. • Connect the cables or if damaged replace them (picture 1). • The doubler board must be replaced.

EXPLANATION

PICTURE 1





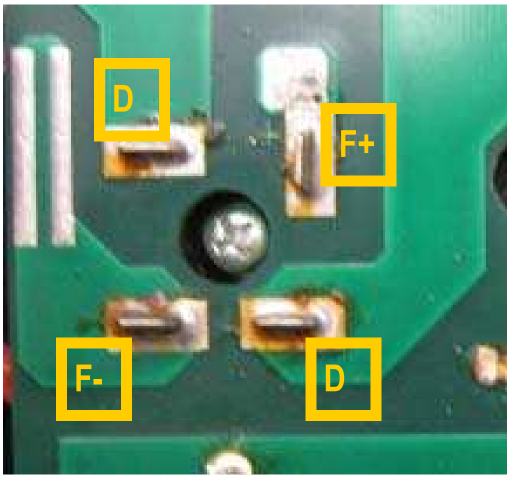
Position of the connector in which they are inserted:

- thermal protection device (yellow wires): position 2, 5
- Wire for the output voltage reading: position 3 (red)
- Shunt wires: position 1, 4.

Check the continuity of contact of the thermal protection device with the diode tester, with the heat sink tool temperature less than 40° C.

Check the continuity between: + socket and the red wire; - socket and the shunt.

PICTURE 2



Input bridge rectifier on the power board.

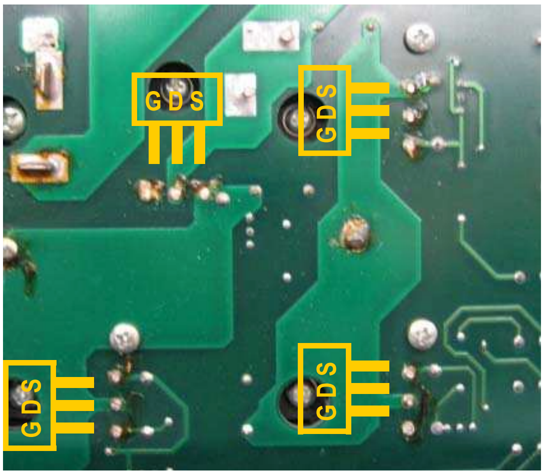
To check the Input bridge rectifier , carry out the following measurements with a diode tester:

Faston	Probe	Faston	Probe	Measure
F+	Rosso	D	Nero	“OL”
F−	Rosso	D	Nero	>.450

Should there be a short circuit on one of these measurements, the input bridge rectifier must be replaced.

EXPLANATION

PICTURE 3

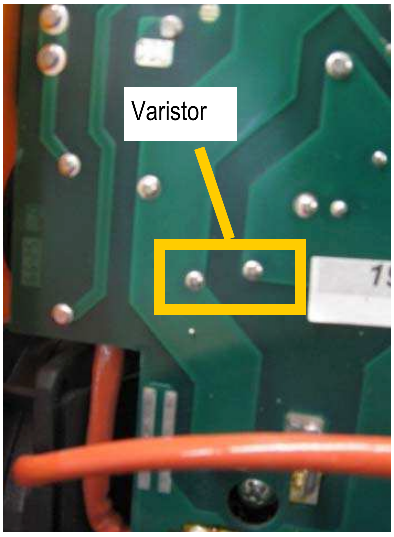


To check the inverter, carry out the following measurements with a diode tester:

Red Probe	Black Probe	Measure
S	G	0.28
G	S	0.6

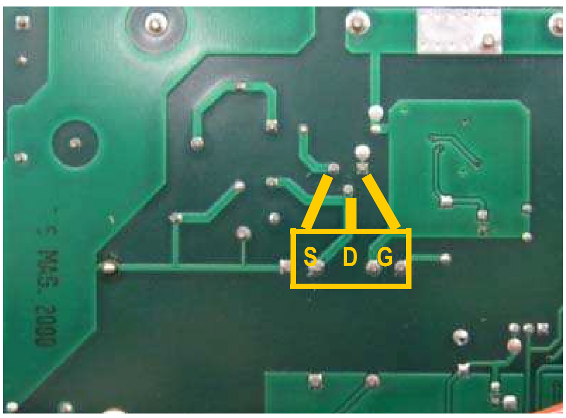
Should there be a short-circuit on one of these measurements or an "OL" instead of a numeric value, the power board must be replaced.

PICTURE 4



The varistor is a blue disc near the ground wire of the power board. This device is for protecting the board from input overvoltage. When there is overvoltage it "explodes" causing a short circuit most of the times. If the extent of the short circuit is very high they become an open circuit.

PICTURE 5



To check the mosfet of the switching power supply unit, carry the following measurements with a diode tester:

Red Probe	Black Probe	Measure
G	D	0.5
D	S	"OL"
G	S	0.6

Should there be a short-circuit on one of these measurements or an "OL" instead of a numeric value, the power board must be replaced.

		EXPLANATION
PICTURE 6		Tester or digital millimetre. “OL” means Open Loop.